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### Methodological issues in researching intercultural competence

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## **PART III**

# **Research and Assessment in Intercultural Competence**

## CHAPTER 24

# Methodological Issues in Researching Intercultural Competence

Fons J. R. Van de Vijver and Kwok Leung

Some 40 years ago, the study of intercultural communication started from a problem that triggered the interest of communication experts. The internationalization of business and migration streams led to an increase in cross-cultural encounters. However, not all encounters were successful; expatriates sometimes returned before the end of their assignment because they could not cope with their new colleagues or the business culture or because of homesickness of their family members. Intercultural competence plays an important role in the lives of expatriates, sojourners, and permanent settlers. Moreover, it is a competence that is also relevant for all employees of a multicultural team. In the past decade, new forms of multicultural teams are emerging; for example, it is more common nowadays to find project teams that never meet, such as international teams in which the expertise needed for developing some product or service comes from different countries, and the functioning of such virtual teams is based on computer-aided communication. Practical problems in intercultural communication have boosted the development of the field. The question of what science can offer to increase the success of intercultural encounters was translated in a rapidly expanding collection of training procedures. The commercial success of these training procedures has been a mixed blessing. This market continues to provide work for many trainers. However, the downside of the success has been conceptual sluggishness of the field and the dearth of well-designed research that can further the understanding of intercultural competence. There has never been a pressing need to engage in more fundamental research studies on this complex concept, including the testing of coherent frameworks that specify the components of intercultural competence,

which of these components can be modified by training/interventions, which can be assessed, the best ways to develop intercultural competence, and which intercultural competence assessment methodologies are most effective (Van de Vijver & Breugelmans, in press).

We argue that the increase in interest in intercultural competence witnessed during the past decades has not led to a much better understanding of intercultural competency or to an adequate handling of methodological issues of such studies. The literature has produced a large number of frameworks, definitions, and approaches of intercultural competence (e.g., Byram, 1997; Collier, 1989; Deardorff, 2004; Gudykunst, 2005; Imahori & Lanigan, 1989; Mol, Born, & Van der Molen, 2005; Redmond & Bunyi, 1993), as discussed by Spitzberg and Changnon in Chapter 1 of this volume. The next step would be to put these to the test and to engage in more fundamental research on this complex construct. We are now in the stage where we are unable to decide which theories are well supported by empirical data, which frameworks should be modified, and which ones should be abandoned altogether. It is also important for research studies to indicate which interventions are most effective in developing intercultural competence as well as which assessment instruments and methodologies are most effective in measuring this complex construct.

The present chapter gives an overview of methodological issues that are relevant in researching intercultural competence and in testing models of intercultural competence, assessment methodologies, and so on. Because of space constraints, we do not deal with discourse analysis and other kinds of content analysis of cross-cultural encounters, but we discuss conceptual and research issues of intercultural competence (including its training). In our view, intercultural competence research faces three types of challenges that are discussed in the next three sections of the chapter. First, we present *conceptual challenges and their methodological ramifications*, such as the lack of using research-based definitions of intercultural competence. Second, intercultural competence research often takes place in field settings such as multinational companies, which [introduce](#) various *sampling and design challenges* to meet the requirements of proper research. Third, much intercultural competence research takes place in cross-cultural settings; as a consequence, *cross-cultural assessment challenges* are fairly common in the studies. Conclusions are drawn in the final section.

## Conceptual Challenges and Their Methodological Ramifications

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The most important challenge in the field of intercultural competence is not methodological but conceptual. In our view, we do not yet have a comprehensive theory of intercultural competence that adequately addresses three questions:

1. Components of intercultural competence: What are its core elements?
2. Structure and nomological network of intercultural competence: What is the relation of these elements? How is intercultural competence structured? What are the antecedents and consequents of intercultural competence?

3. Intercultural competence in actual intercultural encounters: How do the elements of intercultural competence manifest themselves in actual intercultural encounters? As indicated above, this aspect is not discussed extensively in the present chapter.

## Components of Intercultural Competence

Various authors have proposed overviews of attitudes and skills that are supposed to be part of intercultural competence (e.g., Gudykunst, 1998, 2005; see also Spitzberg & Changnon, Chapter 1, this volume). Examples are cultural empathy, accommodation of cross-cultural differences, flexibility in dealing with new cultural situations, communication effectiveness, and language competence. There is no agreement about similarities and differences of intercultural competence with related concepts such as social intelligence and negotiation skills. It could be argued that intercultural competence is no exception to the rule that there are no widely shared definitions of crucial concepts in psychology. The field of intelligence illustrates convincingly that a field can be successful and generate numerous theories and interesting data sets without a proper definition of its core concept (Sternberg, 2000). The field of intelligence evolved quickly a century ago because tests measuring the concept predicted important real-life behavior (school performance). However, it is unlikely that intercultural competence will ever approach the immense level of interest intelligence tests have enjoyed; tests of intercultural competence are not as predictive of success in intercultural encounters as are IQ tests in the prediction of school performance. More work on the conceptualization of intercultural competence is needed to advance the field.

There is almost no empirical work in which the various models that have been proposed are compared and tested. As a consequence, a leading theory of intercultural competence is missing. We are still in this stage of conceptual development in which overlapping, complementary, and incompatible models coexist. However, it should be noted that a recent study (Deardorff, 2004) is the first to document consensus among leading intercultural experts, primarily in the United States, on a research-based definition of intercultural competence, which resulted in two models using the consensual aspects of this concept. We argue that the use of proper designs and analytic methods can greatly enhance the level of theorizing about intercultural competence. One of these issues that would benefit from the use of advanced designs and analytic methods is what could be called the componential definition of intercultural competence. These definitions provide a list of the components that together constitute the concept of intercultural competence. The numerous components that have been proposed as constituent elements of intercultural competence can be reduced to four types (cf. Ruben, 1989). The first could be labeled attitudes or orientations, such as attitudes toward other cultures and diversity in an organization or country. The second type involves personality traits such as cultural empathy and emotional intelligence. The third type is more cognitive and refers to skills presumably relevant in cross-cultural encounters such as negotiation skills and mastery of relevant languages. The fourth type refers to actual behavior in intercultural encounters; in

particular, this latter aspect has not received the empirical attention it deserves (Gudykunst & Shapiro, 1996; Mol et al., 2005).

Most progress in the conceptualization of intercultural competence in the past decade comes from studies of personality aspects. Studies that tried to predict intercultural adjustment on the basis of global personality traits have met with limited success (Matsumoto, LeRoux, Bernhard, & Gray, 2004), but specific measures of personality seem to have more predictive power than global measures (Matsumoto, Le Roux, Robles, & Campos, 2007; Van der Zee & Van Oudenhoven, 2000, 2001). For instance, Matsumoto and colleagues (2001) have developed the Intercultural Adjustment Potential Scale (ICAPS), which includes traits such as emotion regulation, openness, flexibility, and critical thinking that are more relevant to intercultural competency than are general traits such as the Big Five. The Multicultural Personality Questionnaire (MPQ) is another instrument that has been specifically developed to measure traits that are relevant to people working in international and multicultural environments (Van der Zee & Van Oudenhoven, 2000, 2001). The MPQ measures cultural empathy, open-mindedness, social initiative, emotional stability, and flexibility, a number of traits that are related to the Big Five ~~but more~~ specifically geared toward predicting intercultural effectiveness. There is some evidence that the traits measured by the MPQ are related to psychological and social well-being in a foreign environment (Van Oudenhoven & Van der Zee, 2002). The considerable overlap in traits measured by the two instruments, such as flexibility, empathy, and openness, points to convergence as to which personality characteristics are crucial in intercultural competence.

Recently, the notion of cultural intelligence has been proposed for predicting intercultural success (Earley & Ang, 2003). Cultural intelligence or CQ refers to the capability to function effectively in culturally diverse settings, with four major factors. Metacognitive CQ refers to the mental capability to acquire and understand cultural knowledge. Cognitive CQ refers to the general knowledge and knowledge structures about culture. Motivational CQ refers to the capability for an individual to direct energy toward learning about and functioning in intercultural situations. Finally, behavioral CQ refers to the capability of an individual to exhibit appropriate verbal and nonverbal actions in culturally diverse settings. Cultural intelligence has been shown to be predictive of intercultural adjustment and performance in intercultural settings (e.g., Ang et al., 2007).

## Structure of Intercultural Competence

After having established the components that comprise intercultural competence, the next question to consider when researching this construct is the relations of the components. Suppose that we have administered a questionnaire to assess intercultural competence and that we observed positive correlations between the subscales. If we examine the structure of intercultural competence, we look for statistical models that provide summaries of such positive correlations. There is no agreement ~~about~~ how the relations should be conceptualized. Methodological tools can go a long way to compare these conceptualizations and to provide statistically compelling evidence for selecting the model that best describes our data.

We present three kinds of relations between the components. The first is what could be called a *black box* or *input-output* model. Studies using these models do not deal with the theoretical background or conceptualization of intercultural competence but focus on the establishment of significant associations between antecedent variables (among which is intercultural competence) and outcome measures. This model is exemplified in the numerous studies in which intercorrelations are reported between components of intercultural competence or in which [these](#) are used to predict real-life outcomes in a group of immigrants, sojourners, or expatriates or to predict training outcomes in a group of students (Mol et al., 2005). The studies provide useful ideas of contingencies in the field of intercultural competence. However, their conceptual value is limited because the relations between the different aspects of intercultural competence are not examined further.

The second model views intercultural competence as a *hierarchical* concept. This model, implicitly undergirding much research, holds that intercultural competence is a superordinate construct with various interrelated components. Statistically speaking, the model specifies that correlations between the components, such as positive correlations between communication competence and cultural empathy, are due to their common dependence on a single latent factor, called intercultural competence. Conceptually speaking, the model indicates that intercultural competence manifests itself in various aspects of psychological functioning, but intercultural competence may be more influential in some domains than others (e.g., communication skills may have a stronger intellectual component than cultural empathy). This conceptualization can be statistically captured in a two-tier factor structure with the domains constituting the lower level and intercultural competence in the apex. We expect higher within- and lower cross-domain correlations. As an example, Cui and Van den Berg (1991) used confirmatory factor analysis to support their model, which holds that intercultural effectiveness consists of three interrelated components—namely, communication competence, cultural empathy, and communication behavior.

The third model places intercultural competence in a *mediation or moderation* framework. What is common in these frameworks is their focus on how the components of intercultural competence influence outcome variables, such as adjustment or expected performance, or how they are influenced by antecedent factors, such as cultural distance, discrimination, and ethnocentrism of the mainstream population (Fox, 1997; Mamman & Richards, 1996). Compared to the input-output models, the mediation/moderation framework starts from a model about how intercultural competence is related to intercultural outcomes. As an example of a mediation model, suppose that a certain personality type of a prospective expatriate makes a person a better negotiator, which leads to a better performance as an expatriate. The negotiation skills mediate the link between personality and expatriate performance. The situation in which the relation between personality and expatriate performance is (statistically) completely explained by negotiation skills is called complete mediation. Partial mediation refers to the situation in which all relations between the three constructs are significant. A moderator variable, on the other hand, has an influence on the relation of two other variables. For example, suppose that negotiation skills are [stronger](#) related to expatriate performance for males than for females. Gender is then said to moderate the relation between negotiation skills and expatriate performance.

An example of the mediation model can be found in the work by Bush and Ingram (1996), who developed a model for intercultural communication skills in buyer-seller relationships. They argue that intercultural dispositions, such as empathy and cultural knowledge, influence intercultural skills, which in turn have an influence on success in intercultural buyer-seller relationships. From the perspective of the current chapter, this model is very different from the hierarchical model by Cui and Van den Berg (1991) described before in that the former implies a causal order between different aspects of intercultural competence, whereas the latter does not imply any causal order. Redmond's (2000) work among international students in the United States illustrates a moderator approach. He used scores on the Hofstede (1980, 2001) dimensions on the students' country of origin as a measure of cultural distance. Intercultural communication competence included language competence, adaptation, social decentering, communication effectiveness, social integration, and knowledge of the host culture. These competencies were used to predict the experience and handling of stress in a multiple regression equation. The author found different regression weights for the intercultural competencies between respondents from cultures closest to the United States in cultural values and those furthest.

## Methodological Ramifications

Can methodological tools help to clarify the conceptual issues in intercultural competence research? In our view, adequate methods can go a long way. Key to the appropriate use of research methods is a good appreciation of their strengths and weaknesses and of the need to establish a firm link between theory and methods (Bhawuk, 1998, 2001). Good theorizing, adequate designs, and adequate methods are complementary and indispensable for advancing the field. The conceptual fuzziness of the intercultural competence field is much related to a lack of clear insight in the components of intercultural competence and their relations (Leung & Van de Vijver, 2008). Causal techniques can help to test specific theories about these relations. Furthermore, both experimental and nonexperimental techniques can be used to establish a causal order between variables.

*Causality: Strengths and Weaknesses of Experimental Techniques.* Experimental designs are powerful tools to eliminate unwanted group [inferences](#) by randomizing participants across treatment groups (Christensen, 2003). Randomization of participants across treatment procedures, which should ideally also include a control condition, is an effective tool in intercultural competence research to control for confounding participant differences that may have a bearing on training outcomes. As a consequence, random allocation reduces the number of alternative interpretations of study outcomes considerably and increases the internal validity of the evaluation study (Shadish, Cook, & Campbell, 2002).

On the other hand, randomization has its limitations. Intercultural competence research often takes place in very specific cultural settings, involving a group of students or (potential or actual) expatriates or sojourners that may show a limited cultural variability. Randomization may help to control for various participant-related variables, such as personality and intelligence. However, randomization



does not do away with the problem of the specifics of the sample, cultural context, or training procedure (such as personal characteristics of the training administrator). The generalization of findings to new groups of participants, treatment procedures, or cultural contexts for which the training was designed may be problematic and difficult to determine without gathering new evidence on the influence of potentially confounding variables.

*Causality: Strengths and Weaknesses of Nonexperimental Techniques.* The first non-experimental procedure to establish causality involves the use of longitudinal designs (often used in intervention studies that are based on a pretest-training-posttest design). The main strength of these designs is that the temporal order of changes can be determined. For example, by systematically observing participants engaged in intercultural encounters before and after training, it becomes possible to identify which aspects of intercultural competency are affected by training. From a methodological perspective, these designs have attractive properties (mainly related to their high internal validity) and relatively few weaknesses (such as the potential loss of motivation or memory effects at the posttest). The many practical problems associated with longitudinal designs (expensive to conduct and often cumbersome to implement) have precluded their widespread usage; most training studies of intercultural competence use cross-sectional designs in which all variables of interest are measured at the same point in time (Shaughnessy & Zechmeister, 1997).

The second type of nonexperimental techniques in establishing causality can be found in the numerous so-called causal techniques. Good examples are stepwise regression analysis, path analysis, and confirmatory factor analysis (e.g., Kline, 2005). Within the context of intercultural competence, these techniques are able to model the relations between various competency-related constructs, such as skills, personality, and attitudinal aspects of intercultural competence. Much literature on intercultural competence and intercultural competence-related aspects is based on models that are not easy or even impossible to reconcile. Is self-esteem a resource for sojourners to deal with acculturative stress (Al-Sharideh & Goe, 1998), is it influenced by this type of stress (Nesdale & Mak, 2003), or is it a mediator that links discrimination to stress (Corning, 2002)? Is perceived cultural distance mainly a function of more or less objective country-level characteristics (Ward, Bochner, & Furnham, 2001), or is it influenced by acculturation experiences (Galchenko & Van de Vijver, 2007)? Is perceived discrimination an antecedent of acculturative stress (Vedder, Van de Vijver, & Liebkind, 2006) or an outcome of acculturation (Ward, 2006)? It is an attractive feature of these causal models that they provide a statistical test of the goodness of fit, which indicates to what extent the theoretically presumed state of affairs that led to the model being tested is corroborated by the data. Differences between different hierarchical models of intercultural competence components (such as different mediation or moderation models) can be compared in causal models; these models allow for empirical tests of the extent to which different models provide an accurate description of the empirical data.

Psychological acculturation studies provide relevant examples of mediation and moderation models. Psychological acculturation refers to the psychological

consequences of prolonged contact with other cultural groups (Graves, 1967). It is remarkable that the literature on intercultural competence does not make more reference to acculturation studies, despite the relevance of acculturation in overseas assignments. Acculturation research has studied extensively the relations between input, intervening, and psychological outcomes of migration (Sam & Berry, 2006). For example, Ait Ouvarasse and Van de Vijver (2004) studied acculturation outcomes (psychological and sociocultural) among 155 Moroccan-Dutch young adults as a function of both input variables (perceived characteristics of the mainstream and immigrants' culture) and mediating variables (acculturation orientations, which refer to the preference to adopt the mainstream culture and/or maintaining the ethnic culture). The perceived mainstream context consisted of a tolerance factor and an integration factor, while the perceived minority context consisted of a permissiveness to adjust factor and an ethnic vitality factor. A path model in which both the perceived mainstream and minority contexts predicted acculturation outcomes showed a good fit. The effects, flowing from perceived context to outcomes (stress and success at school and work), were both direct and indirect (through acculturation orientations). The mainstream context was crucial for work success, and the minority context was especially important in leading to school success and good mental health.

The immense flexibility of causal models, combined with their detailed analysis of model fit and procedures to improve this fit, holds great potential for intercultural competence and intercultural research in general. However, this flexibility can easily become a weakness. It is often tempting to change a hypothesized model of relations among variables with the aim of maximizing the fit of the model, thereby challenging the replicability of the results. Progress in the field is hampered by the imbalance between the low level of theorizing about intercultural competency and the sophisticated statistical tools that are available to test our theories.

*Strengthening the Validity of Cross-Cultural Causal Inferences: The Consilience Approach.* Dealing with causality in nonexperimental research is a thorny issue. In our view, multiple strategies can be adopted to increase the validity of causal inferences. We coined the term *consilience approach* to describe all efforts to strengthen casual inferences by means of providing diverse evidence based on a sound theoretical basis, multiple sources of data, different research methods, and explicit refutation of alternative interpretations (Leung & Van de Vijver, 2008). Causal inferences are taken to be stronger in this approach when independent lines of evidence supported the inferences and/or alternative explanations are refuted. Causal inferences can be supported by four types of consilience. First, contextual consilience requires that diverse evidence is collected from a wide range of cultural contexts and cultural groups (e.g., an intercultural competence training procedure with a claimed global efficacy is found to yield the predicted improvement in communications skills in various countries). Second, methodological consilience requires the demonstration of a causal relationship with diverse methods, such as surveys, experimentation, and longitudinal studies (e.g., the training shows improved skills across a wide variety of outcome measures). This notion is consistent with the practice of triangulation (i.e., the verification of a finding with different methods; Crano & Brewer, 2002; Saris,

2003). Third, the notion of predictive consilience means that diverse predictions based on a causal theory are evaluated, and the confirmation of these predictions provides strong evidence for this theory (e.g., suppose that the training is predicted to differentially influence various components of intercultural communication; confirmation of a complex pattern of null, small, and large effects provides a test of the causal effects of the training). Finally, exclusive consilience requires that no alternative explanation is able to explain the evidence for a given causal explanation. A working assumption underlying exclusive consilience is that we may take a causal relationship as valid, but a wide range of alternative explanations should be evaluated. The emergence of conflicting evidence will lead to the revision of the causal relationship. For example, the effect of an intercultural competence training should not be a consequence of increased scores at the posttest due to repeated exposure to the test instrument.

*Caveat.* The field of intercultural competence uses both individual- and culture-level concepts. The distinction between these two is not always taken into account. It is all too common to see that culture-level concepts are applied at the individual level. Many examples of this so-called ecological fallacy (Hofstede, 1980, 2001; Robinson, 1950) can be found in the literature on individualism-collectivism. The latter dimension is a culture-level characteristic, but the concept is often applied at the individual level. For example, convenience samples of Japanese adults are all supposed to be collectivistic, whereas similar samples of American adults are supposed to be individualistic. Now, it may well be that, if measured properly, a random sample of Japanese would score higher on collectivism than a random sample of Americans, but the difference in means does not justify the indiscriminate application of culture-level characteristics to individuals. For example, education level is known to have a strong, positive relation with individualism. As a consequence, a Japanese sample with a high level of education could well be more individualistic than a sample of less educated Americans. It is only in multilevel models that individual- and culture-level variables can be jointly assessed in a statistically adequate manner (Raudenbush & Bryk, 2002). However, such analyses require a large number of cultures. In the absence of prior evidence, we have to be careful about not to mix individual- and culture-level characteristics and to ensure that ascriptions of culture-level characteristics to individuals can be validated or at least defended.

## External Validity: Sampling and Design Challenges

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The main challenge for intercultural competence studies is presumably the enhancement of their external validity. Threats to this validity come from two sources: The first is the small samples in field studies and the inadequacy of student samples for many types of intercultural competence research. Results obtained with students may not apply to expatriates. Second, intercultural competence research takes place in various settings, both in laboratories and the field. Both contexts create their own

challenges. In laboratory settings, it is often relatively easy to recruit large samples and to implement complicated designs, such as training studies with multiple conditions. Obtaining large samples and implementing complex designs are much more difficult to achieve in field settings. Studies of expatriates with sample sizes larger than, say, 100 participants are hard to find. Similarly, there are only a few studies with complicated training designs. There is an important trade-off to consider in choosing samples and research sites. Studies involving students, assessed in the laboratory, may have high internal validity but low external validity. The instruments may show good psychometric qualities, and the training procedure may have been implemented in an adequate manner so that differences in scores by control and experimental groups can be interpreted in a straightforward manner. However, these favorable findings regarding internal validity do not provide much information as to their applicability in groups of professionals who work in an intercultural context. Studies in field settings may have low internal validity and their sample sizes may be limited, but the generalizability of their findings to other contexts with similar employees may be more readily assumed (if samples are sufficiently large).

The question arises as to how the low external validity of many intercultural competence studies can be improved. In addition to the obvious solution of using larger and more representative samples, other possibilities may be easier to implement. The first is to assess more aspects of intercultural competence than usually done. Classifications of the elements of intercultural competence tend to be fairly broad and include various components ranging from personality characteristics to skills, but actual measures of intercultural competence are often a poor rendering of this variety. The second is to measure other aspects of the participants and their cultural and organizational context more extensively to establish their associations with intercultural competence. Using broader measures of intercultural competence, combined with measures of relevant personal and contextual aspects, will lead to a better generalizability of research findings.

## Cross-Cultural Assessment Challenges

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Studies of intercultural competence require adequate treatment of assessment issues. Without proper measures of intercultural competency before and after training, it is impossible to establish the value of training procedures. Most often, the assessment instruments that are used in intercultural competence research are based on self-reports, which have well-documented limitations. Given the complexity of assessing intercultural competence research, Deardorff (2004) has shown that it is important to use a multimethod, multiperspective approach when assessing intercultural competence. This kind of approach has been rarely used to date. Nonetheless, when selecting instruments to use in research studies of intercultural competence, the instruments should meet two methodological criteria. First, there are the usual requirements of good psychometric properties, such as adequate internal consistency of all measures that should be above a minimum threshold of .70 or .80 (Cicchetti, 1994). Second, the instruments should be adequate from a cross-cultural perspective.

We provide a short summary here, and interested readers can consult Van de Vijver and Leung (1997) for a detailed treatment. A judicious use of instruments in intercultural competence research requires knowledge of multicultural assessment and awareness of the issues that threaten such assessment. Assessment problems in intercultural competence are related to those in multicultural testing (Hambleton, Merenda, & Spielberger, 2005; Suzuki, Ponterotto, & Meller, 2001), which come from three sources: the underlying construct, sample characteristics or mode of administration, and specific items. In cross-cultural assessment, these problems are labeled construct bias, method bias, and item bias, respectively (Van de Vijver & Leung, 1997). A measure of intercultural competency shows construct bias if the items inadequately cover the construct in the sample or target culture (e.g., specific aspects of this competency are much more important in some target cultures than in others) or if a measure does not show the same factorial structure across groups of sojourners coming from or living in different countries. There is tentative evidence for the factorial stability of some instruments such as the Intercultural Adjustment Potential Scale of Matsumoto and colleagues (2001) and the Multicultural Personality Questionnaire (Van der Zee & Van Oudenhoven, 2000), yet the implicitly assumed universal applicability of measures of intercultural competency has never been addressed systematically in a wide range of cultures. (For discussion of other instruments, see Fantini [Chapter 27], this volume.)

Method bias is a major challenge for intercultural competence-related assessment. This kind of bias can come from different sources. Samples may differ on relevant background characteristics such as education; educational differences may then lead to an underestimation or overestimation of cross-cultural differences in intercultural competence scale scores. Because English is the lingua franca in most intercultural competence research, it may seem obvious to use test norms established in an English-speaking country. However, such norms are usually based on American or British (monocultural) samples and cannot be used until new, pertinent validity data for the target cultural groups have been presented. In addition, people from different cultures may have different response styles. For example, some cultural groups may avoid the use of extreme scores on a scale, and cultural differences may reflect this bias rather than cultural differences in the construct that was intended to be measured by the items (Harzing, 2006; Van Hemert, Van de Vijver, Poortinga, & Georgas, 2002). Acquiescence and social desirability are stronger in less affluent countries. Finally, the administration procedure of an assessment instrument or the implementation of an intervention may differ in subtle ways across cultures, which may be a source of confounding influence that threatens a cross-cultural comparison.

A last source of bias resides in items. There may be cultural differences in the extent to which an item is indicative of its underlying construct. In other words, the same score on an item may reflect different levels of the underlying construct that it measures across cultural groups. A simple cross-cultural comparison may be misleading because a culture that has a higher scale score than another culture does not guarantee that this culture is indeed higher in the construct that the scale is supposed to tap. A well-known example is that cultural differences in IQ test scores may not reflect genuine cultural differences in intelligence because some items may be biased.

Another common source of item bias comes from translation when imported scales are used, and inaccurate translation can be a source of confounding influence. Even if a translation seems accurate, differences in nuances may cause some unnoticed shift in meaning. Various linguistic problems such as American or British colloquialisms can reduce the adequacy of an instrument. When English is not the mother tongue of the target group, test scores may, unintentionally, be influenced by the knowledge of the testing language and culture.

## Conclusion

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Intercultural competence research enjoys a well-deserved wide interest, yet from a methodological perspective, such studies face various challenges. The present chapter describes the most salient issues in designing and analyzing such studies. These issues can be classified as intrinsic problems that are due to the state of the field or the nature of the study topic, such as poor theorizing that complicates the choice of good indicators of intercultural competence and the specification of relations between the indicators, as well as the often difficult field conditions in which these studies take place. Other problems, however, do not reflect intrinsic characteristics of the field but are the consequences of inadequate research methodologies commonly adopted in the field, such as poor sampling or the use of small samples and the infrequent usage of sophisticated statistical analyses. A judicious use of good designs and methods can boost the quality and impact of intercultural competence research. The use of advanced designs and statistical analyses cannot compensate for poor theorizing, but it can help to test competing models of intercultural competence, differentiate the central and peripheral aspects of intercultural competence, decipher which aspects of intercultural competence are influenced by training, and determine to what extent intercultural competence influences expatriate performance and expatriate functioning influences intercultural competence. In short, advanced designs and tools can help to break potential deadlocks and to guide researchers to be precise in conceptualization and measurement.

Let us give a few concrete examples of how advanced designs and analyses can help to advance the field. Longitudinal studies can be used to identify which aspects of intercultural competence remain invariant during a sojourn and which aspects are altered by intercultural encounters. Adequately designed intervention studies can help to identify which training design is more (or less) effective in preparing expatriates for an overseas assignment. Structural equation modeling can help to evaluate the role of intercultural competence as an antecedent variable or mediator of expatriate performance and adjustment (in addition to predictors such as cultural distance and ethnic vitality). Confirmatory factor analysis can help to identify the structure (hierarchical or otherwise) of multicomponent measures of intercultural competence. Finally, bias and equivalence analyses can determine whether an intercultural competence measure is appropriate for use in a multicultural group of sojourners.

The time is ripe for a new wave of intercultural competence studies that are guided by sound and rigorous research designs and methods. The first wave of publications was mainly conceptual; this wave has led to a rich database of conceptualizations and

empirical results. However, past efforts should be integrated in more comprehensive, in-depth research on the various issues related to intercultural competence. In the past two decades, numerous relevant statistical techniques have been developed, and many examples of sophisticated intervention studies in various psychological domains can be found in the literature. The combination of these techniques and designs can help to boost the development of intercultural competence research and eventually a more thorough ~~our~~ understanding of intercultural competence.

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